Onsite Wastewater Joint Technical Review Committee (TRC) and Rule Development Committee (RDC) Meeting
June 11 & 12, 2003

SeaTac Occupational Skills Center
18010 8th Avenue South
SeaTac, Washington 98148
(206) 433-2525

(Meeting Notes)

Meeting Attendance:

Wednesday June 11, 2003			**Thursday June 12, 2003**	
James Hart	Karcher Creek		James Hart	Karcher Creek
Jerry Deeter	Kitsap Co Hlth		Jerry Deeter	Kitsap Co Hlth
Melanie Kimsey	Ecology		Melanie Kimsey	Ecology
Terry Hull	PSAT		Terry Hull	PSAT
Allison Blodig	Bio-Microbics		Allison Blodig	Bio-Microbics
Ken Moody	Bio-Microbics		Ken Moody	Bio-Microbics
Bill Stuth	Stuth, Co		Bill Stuth	Stuth, Co
Bill Dewey	Taylor Shellfish		Bill Dewey	Taylor Shellfish
Peter Lombard	ORENCO		Peter Lombard	Designer/WOSSA
Craig Cogger	WSU		Dave Lenning	DOH
Mike Vinatieri	Clark Co Hlth		Scott Jones	Scott Jones Assoc
Eric Knopf	Indigo Design		Selden Hall	DOH
Selden Hall	DOH		Mark Allen	KC Health
Tom Rogers	Northwest Cascade		Mike Vinatieri	Clark Co Hlth
Bill Peacock	City of Spokane		Carl Garrison	Aquaworx
Jim Patterson	RDC		Eric Knopf	Indigo Design
Mark Soltman	DOH		Tom Rogers	Northwest Cascade
Stephen Wecker	Designer		Bill Peacock	City of Spokane
John Eliasson	DOH		Jim Patterson	RDC
Laura Benefield	DOH		Mark Soltman	DOH
Kelly Cooper	DOH		Stephen Wecker	Designer
Dave Lenning	DOH		John Eliasson	DOH
Jane Lee	DOH		Laura Benefield	DOH
David Allen	Multi-Flo		David Allen	Multi-Flo
Art Starry	Thurston Co Health		Kelly Cooper	DOH
Keith Grellner	Kitsap Co Health		Jane Lee	DOH

Agendas

Wednesday June 11, 2003

Time	Agenda Item	Outcome	Lead
9:00	Welcome Agenda		Dave Lenning
9:15	• Treatment levels • Disinfection • Minimum land area	Discussion	Dave Lenning
12:00	Lunch		
12:30	Continuation of discussion	Discussion	
4:00	Adjourn		

Thursday June 12, 2003

Time	Agenda Item	Outcome	Lead
9:00	Welcome Agenda		Dave Lenning
9:15	Carry over discussion if necessary on: • Treatment levels • Disinfection • Minimum land area	Discussion	Dave Lenning
12:00	Lunch		
12:30	TRC Business		
4:00	Adjourn		

The TRC and eleven RDC members and alternates met on June 11th and 12th, 2003 to consider the TRC recommendations on changes to the rule for treatment levels and minimum land area. The decisions of the meeting are highlighted in the following meeting outline used by Dave Lenning to facilitate the meeting. (Tables from the TRC Recommendations: Treatment Levels Report for Joint RDC/TRC Meeting June 11-12, 2003 used during the meeting are included.

TRC/RDC Meeting
June 11-12, 2003

I. **Meeting Objectives**
   A. Briefly summarize technical findings considered by TRC.
   B. Give RDC members an opportunity to ask TRC members any questions about the TRC findings/recommendations.
   C. Decide how/what to present to RDC at its June 18th meeting.

II. **Topic: <u>Treatment Levels</u>**

Assumptions:

1. Varying treatment levels are needed.
2. Adequate O&M will be provided commensurate with the level of system complexity or site sensitivity.
3. Levels will be used for listing/registering technologies, <u>not</u> to provide levels that determine an on-going compliance standard. A technology will be "deemed to protect/comply" if:
   a. It is registered to meet a specific standard required by a site's soils and conditions.
   b. It was sited properly.
   c. It was installed properly.
   d. It is being operated/used properly.
   e. The measurements and observations of the on-going monitoring/inspection program indicate the system is functioning within acceptable parameters.
   f. It is being maintained properly.
4. The RDC has already agreed on:
   a. Definitions for soil types 1-7
   b. A level for residential septic tank effluent
   c. A level that will allow reductions in sizing drainfields
   d. Replacing BOD_5 with $CBOD_5$

Decision:

Assumptions approved.

Before the assumptions were approved, considerable time was spent discussing O&M and treatment levels for product registration versus performance levels for field testing.

Concerns about specific performance indicators versus deemed to comply were discussed. If performance indicators are used to determine whether a system is working properly it will be more difficult to get homeowners to support an O&M program due to the cost of sampling. Compliance is also an ongoing unresolved issue.

B. Information sources
   1. Rule Development Committee Issue Research Reports on "Application of Treatment Standard 1 & 2" and "Type 1 Soil Issues" developed by John Eliasson, DOH staff; 2002 USEPA Onsite Manual
   2. TRC Report to RDC, April 24, 2003 meeting – portions of this report are attached.
   3. Disinfection report –

C. **Parameters** to be <u>considered</u> for treatment levels - Except for the residential septic tank effluent level, the selected parameters will be required in the testing program. FOG was only included with the septic tank effluent level as that level will not go through testing. The RDC has <u>conceptually</u> accepted the following parameters (as per TRC recommendations):
   1. $CBOD_5$
   2. TSS
   3. Fecal coliform
   4. Nitrogen
   5. FOG (added in concept)

   Decision:
   Parameters were approved

D. **Number of levels** needed to provide 1) adequate levels of protection for varying site and soil conditions and 2) flexibility to cover conditions in a diverse state.
   1. Currently, Washington State has 4 treatment levels: Treatment Standard 1 (in rule), Treatment Standard 2 (in rule), a standard for reducing drainfield size (in RS&G), residential septic tank effluent (in RSG).
   2. Two levels have already been agreed upon by the RDC – residential septic tank effluent, standard for reducing size of drainfields
   3. The current levels provide protection commensurate with the risks at both ends of the scale – high risk sensitive sites and those sites with good deep soils posing a low risk. However, an intermediate level providing protection commensurate to a site with moderate risks does <u>not</u> currently exist. The TRC has recommended <u>a level between the existing treatment standard 2 and the existing septic tank effluent level</u>, which was conceptually accepted by the RDC.

Decision:

There was general agreement that four treatment levels (A, B, C and E) plus one level (D) for highly treated effluent for drainfield sizing reductions made sense and to move forward.

Table "C" below is the TRC proposed Treatment Levels. How Treatment Level "D" fits in to the 5 Treatment Levels was discussed. "D" had been removed from the table because it was not an actual treatment level but was used for drainfield sizing (reduction) when all parameters listed under "D" were met.

Table "C" Comparison of Current and Proposed Performance Levels, Related to Site Capacity to Provide Final Treatment

Current Framework / Levels	TS 1	TS 2		Septic Tank Effluent
Site Risk	Highest		Moderate	Lowest
Proposed Framework / Levels	A	B	C	E

Site Risk: Sites with the lowest capacity to provide Final Treatment and Dispersal (poorest soils and shallowest vertical separation) place public health protection at the highest level of risk.

4. There are areas sensitive to nitrogen. In such areas, nitrogen can be handled two ways: 1) removing nitrogen with wastewater treatment components and 2) dilution by providing sufficient minimum land areas (this will be considered during the discussion on minimum land area). A standard for total nitrogen does not currently exist. The TRC has recommended a level that can be applied wherever nitrogen is a concern. It can be used with any other treatment level. The RDC conceptually accepted the inclusion of a level for nitrogen.

E. For each parameter in each treatment level, a **value** is needed (Proposed Table A). Except for septic tank effluent:
   1. The current $CBOD_5$ value is 10 mg/L. The TRC has recommended that the 10 mg/L be retained for the sites with the highest risks and that the level be increased to 25 mg/L for other levels.
   2. The current TSS value is 10 mg/L. The TRC has recommended that the 10 mg/L be retained for the sites with the highest risks and that the level be increased to 30 mg/L for other levels.
   3. The current fecal coliform levels (number/100 ml) are 200 for Treatment Standard 1 and 800 for Treatment Standard 2. The TRC has recommended the 200 be retained for the highest risk sites, 1,000 for sites with less risk, and 10,000 be used for sites with a moderate level of risk.

Table A – Treatment Levels for Product Registration

Level	Parameters				
	$CBOD_5$ (mg/L)	**TSS (mg/L)**	**FOG (mg/L)**	**FC (#/100 ml)**	**TN (mg/L)**
A	10	10	---	200	---
B	25	30	---	1,000	---
C	25	30	---	10,000	---
D	25	30	---	---	---
E	200	80	20	---	---
N	---	---	---	---	20

Note: Values for $CBOD_5$ and TSS are 30-day averages; FC values are 30-day geometric means.

(These levels reflect performance testing thresholds for registering technologies or products. They do not reflect maximums for use in sampling existing systems as part of an on-going O&M program.)

Notes on treatment levels:

a) Level A (Approved)
   i. For new construction, fecal coliform reduction must have been tested as part of the "treatment train"
   ii. For repairs, non-tested disinfection may be used

b) **Levels B** and **C (Approved)**
   i. Fecal coliform reduction must have been tested as part of the "treatment train"
   ii. Non-tested disinfection units are not permitted for either new construction or repairs.

c) **Level D - (Approved**) used solely as the threshold for reducing drainfield sizes based upon effluent quality

d) **Level E (Approved**) represents typical septic tank effluent from a residential structure.

Level N - may be used with any of the 5 levels, wherever nitrate is a chemical of concern.

Decisions:

- In Table A: **Treatment Levels for Product Registration,** should levels B, C, D; have Treatment Levels of 25 mg/L CBOD5 and 30 mg/L TSS?

  Yes: 8

  No: 3 The no's did not see the reason for changing B from the 10/10 standard. (A vote the next day changed the treatment levels for B to 15/15 mg/l CBOD5 and TSS.)

- Should the fecal coliform levels for Treatment levels A (200 FC/100 ml), B (1,000 FC/100ml), and C (10,000 FC/100ml)?
  Yes: 6
  No: 2 (They didn't see the reason for changing level B)
  Abstained: 3.
  (The next day level "C" was changed to 50,000 FC/100ml)

4. For total nitrogen, the TRC has recommended a level of 20 mg/L.

Decisions:

Should there be a Treatment Level for Nitrogen?
Yes: 11
No: 0

Should the Treatment Level for Nitrogen be 20mg/L?
Yes: 11
No: 0

F. **Disinfection** is one of the technologies used to meet the fecal coliform values in the treatment levels. Because of the lack of a current testing standard for small disinfection units, the unreliability of currently available units, and the incapability of providing the needed on-going O&M, the TRC has recommended:
1. For new construction, disinfection units must have been tested according to an acceptable protocol, either as an individual unit or as part of a treatment train.
2. For repairs on only the highest risk sites, untested disinfection units can be used.

Much discussion focused on whether to continue to allow disinfection for repairs if the unit was not tested. Reliability and cost of maintenance were additional concerns. The discussion was postponed until later in the agenda.

G. Decisions must be made on how to **apply** the selected treatment levels.

1. Currently, Table IV in WAC 246-272 depicts the appropriate treatment standards and distribution methods required for varying soil types and vertical separation. The current Table IV includes the following three ranges for vertical separation allowing new construction:
   a. ≥12" to < 24" – the TRC recommended that this range be split into two ranges of vertical separation (≥12" to >18", ≥18" to >24") to provide more flexibility and to recognize the benefit of a greater vertical separation.
   b. ≥24" to <36" – no changes are recommended
   c. ≥36" – the TRC recommended that this range be split into two ranges of vertical separation (≥36" to >60", ≥60") to provide more flexibility and to

recognize the benefit of a greater vertical separation. (TRC proposes the following new tables Table IVA and IVB).

Table IVA

Treatment Level Required and Method of Distribution				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	B	B	B	C
≥18" <24"	B	C	C	C
≥24" <36"	B	C	C (gravity-flow drainfield allowed) or E (pressure-flow drainfield required)	C (gravity-flow drainfield allowed) or E (pressure-flow drainfield required)
≥36" < 60"	B	E	E	E
≥60"	C	E	E	E

Table IVB

Distribution Method Required in Final Treatment & Dispersal Component				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	Pressure	Pressure	Pressure	Pressure
≥18" <24"	Pressure	Pressure	Pressure	Pressure
≥24" <36"	Pressure	Pressure	Gravity Allowed with Pre-Treatment System Level C **or** Pressure required with Pre-Treatment Level E	Gravity Allowed with Pre-Treatment System Level C **or** Pressure required with Pre-Treatment Level E
≥36" < 60"	Pressure	Pressure	Gravity Allowed	Gravity Allowed
≥60"	Pressure	Gravity Allowed	Gravity Allowed	Gravity Allowed
Pressure means: pressure distribution with timed-dosing required (If timed dosing to a treatment component will in turn provide timed-dosing to the final treatment & dispersal component, Than timed-dosing is not required for the final treatment & dispersal component. Example: Intermittent sand filter)				

Decisions:

Should the Treatment Level tables be divided into 5 levels of vertical separation?

Yes: 11
No: 0.

Should Level B be changed from 25/30 to 15/15 mg/L CBOD5/TSS with 1,000 FC/100ml, and C be changed from 25/30 CBOD/TSS and 10,000 FC/100ml to 25/30 CBOD/TSS and 50,000 FC/100ml?

Yes: 8
No: 2
Abstain: 1

2. The TRC has recommended <u>treatment levels and methods of distribution for each vertical separation and soil type</u>.
   a. The required treatment level is the greatest for the coarsest soil and the smallest vertical separation. The required treatment level is reduced as the soils become finer textured and as the vertical separation gets greater.
   b. <u>Wherever pressure distribution is required, time dosing is also required</u> as per the TRC recommendation.
3. The RDC has agreed that there are sites that require higher levels of treatment due to their increased sensitivity, regardless of their soil type or vertical separation. This agrees with TRC conclusions. The TRC recommended treatment levels and methods of distribution for the following situations:
   a. <u>Within certain distances from sources of drinking water especially sensitive to contamination</u>.

Decisions:

Is the Drinking Water Resource Table D needed?

Yes: 10
No: 1

Should the Table be placed in Rule or Guidance?

Rule: 2
Guidance: 8
Abstain: 1

Table D: Treatment Levels Within **Drinking Water** Resource Areas

Treatment Levels Required				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	A	A	A	B
≥18" <24"	A	B	B	B
≥24" <36"	B	B	C	C
≥36 – 60"	B	C	E	E
≥60"	B	E	E	E

Distribution requirements in final treatment and dispersal component – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provide timed-dosing to the final treatment & dispersal component, then time-dosing is not required for the drainfield/final treatment & dispersal component. Example: An intermittent sand filter)

b. Within certain distances to surface water (for the May 6, 2003 RDC meeting this was changed to designated shellfish growing areas).

Table E – Treatment Levels: Requirements Within **Surface Water** Resource Areas

Treatment Levels Required				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	A	B	B	B
≥18" <24"	B	B	C to B	C to B
≥24" <36"	B	B to C	C	C
≥36" - 60"	B	E	E	E
≥ 60"	C	E	E	E

Distribution requirements in final treatment and dispersal component – Pressure distribution with timed-dosing (If timed dosing to a treatment component will in turn provide timed-dosing to the final treatment & dispersal component, then time-dosing is not required for the drainfield/final treatment & dispersal component. Example: An intermittent sand filter)

At the end of the second day the committee decided to merge the tables of Treatment Levels and Methods of Distribution into one revised Table IV. (This new table was distributed at the June 18th RDC meeting and is included here for continuity.)

Proposal

1) There are areas that need extra protection beyond that provided in the current Table IV.
2) Combine TRC proposal for surface water resource areas with the proposed Table 4 – results in new proposed Table IV.
3) Place the proposed table for ground water resource areas and accompanying information in the guidance document. Place into rule the direction to the health officer to address other areas of higher risk, such as ground water resource areas.

Revised Table IV

Treatment Level Required & Method of Distribution				
Vertical Separation	**Soil Type**			
	1	**2**	**3 — 4**	**5 — 6**
≥12" <18"	A - P	B - P	B - P	B - P
≥18" <24"	B - P	B - P	B - P	B - P
≥24" <36"	B - P	C - P	E - P	E - P
≥36" < 60"	B - P	E - P	E - G	E - G
≥60"	C - P	E - P	E - G	E - G

Key: First letter in each cell is required treatment level. Second letter in each cell is required method of distribution: P – Pressure distribution with time-dosing, G - gravity

4. Currently, Table VI in WAC 246-272 depicts the appropriate treatment standards and distribution methods required for varying soil types and vertical separation when vertical and/or horizontal separations can't be met.
   a. The current Table VI does not:
      1) Incorporate soil type. The TRC has recommended that soil type be incorporated.
      2) Apply to horizontal separations greater than 100 feet. The TRC has recommended treatment levels for horizontal separations greater than 100 feet.

   The TRC has recommended treatment levels for the varying soil types, vertical separations, and horizontal setbacks. (See Revised Table VI)

   Revised Table VI: Required Pretreatment Levels for **Repairs** when insufficient horizontal or vertical separations to sources of drinking water or surface water exist

Horizontal Separation →→→→	< 25 feet				25 < 50 feet				50 < 100 feet				> 100 feet			
Vertical Separation	Soil Type				Soil Type				Soil Type				Soil Type			
	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6	1	2	3 - 4	5 - 6
< 12"	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B
≥12" <18"	A	A	A	A	A	B	B	B	A	B	B	B	Conforming Systems			
≥18" <24"	A	A	A	A	A	B	B	B	A	B	C	C				
≥24" <36"	A	B	B	B	B	C	C	C	B	C	C	C				
≥36"	A	B	B	B	B	C	C	C	B	C	E	E				

Note: In all cases where there is less than 12 inches of vertical separation in a **Water Resource Area**, Treatment Level A is required.

Decision:

Vote to accept proposed Table VI:

Yes: 10

Abstain: 1.

(It was noted that the local Health Officer still has discretion in handling setback reductions between 75 feet to 100 feet.)

The majority of the members favored placing the Tables of Treatment Levels in Guidance and allowing local Health jurisdictions to make the decision on how to apply them.

Disinfection continued.

The RDC members decided that the use of chlorine or ultraviolet to meet fecal coliform values in different treatment levels would require the following criteria be satisfied:

1. Any disinfection unit must meet nationally acceptable protocol in order to be used, either as an individual unit or as part of a treatment train.
2. Chlorine and ultraviolet shall not be used in the following situations:
    a. Type 1 Soils
    b. Repairs with less than 12 inches vertical separation
    c. To meet the fecal coliform values for treatment level C.

Decision:

Yes: 8

No: 0

Abstain: 2

III. **Topic: <u>Minimum Land Area</u>**

A. Assumptions

1. While there are various chemicals (metals and organics) potentially present in domestic wastewater that won't be removed in soil, total nitrogen is the one currently of primary concern.
2. As discussed in the section on treatment levels, the two primary ways of dealing with nitrogen are to remove it during the treatment process or to dilute it by having larger minimum land areas.

EXISTING TABLE VII
Minimum Land Area Requirement
Single Family Residence or Unit Volume of Sewage

Type of Water Supply	Soil Type (defined by section 11001 of this chapter)					
	1A, 1B	2A, 2B	3	4	5	6
Public	0.5 acre[1]	12,500 sq. ft.	15,000 sq. ft.	18,000 sq. ft.	20,000 sq. ft.	22,000 sq. ft.
	2.5 acre[2]					
Individual, on each lot	1.0 acre[1]	1 acre	1 acre	1 acre	2 acres	2 acres
	2.5 acres[2]					

[1] Due to the highly permeable nature of Soil Type 1A, only alternative systems which meet or exceed Treatment Standard 2 can be installed.

2 [2] A conventional gravity system in Soil Type 1A is only allowed if it is in compliance with all conditions listed under WAC 246-272-11501(2)(h). One of these limiting conditions is a 2.5 acre minimum lot size.

<u>REVISED</u> TABLE VII
Minimum Land Area Requirement for new subdivisions[1]
Single Family Residence or Unit Volume of Sewage

1	Soil Type (defined by section 11001 of this chapter)					
	1	2	3	4	5	6
Public	0.5 acre2	0.5 acres (21780 ft2)	0.5 acres (21780 ft2)	0.5 acres (21780 ft2)	0.5 acres (21780 ft2)	0.5 acres (21780 ft2)
	2.5 acre3					
Individual, on each lot	1.0 acre2	1 acre	1 acre	1 acre	1 acre	1 acre
	2.5 acres3					

1 Land area under surface water is not included in the minimum land area requirements.

2 Due to the highly permeable nature of Soil Type 1, only systems which meet or exceed the required treatment level can be installed.

B. Information sources:
   1. Rule Development Committee Issue Research Report on Lot Size (Minimum Land Area) developed by Selden Hall.
   2. Technical information report included with this document.

C. TRC Recommendations
   1. For existing/proposed development: Where gross density exceeds 1 unit volume/acre, nitrogen must be addressed.
   2. For new proposed subdivisions:
      a. When public water is proposed: minimum gross densities of 2 units/acre
      b. When individual wells proposed: minimum gross densities of 1 unitacre
   3. Delete Method II TRC Recommendation

The discussion on Minimum Land Areas will be continued at the next RDC meeting on June 18, 2003.